



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/334,137  
Applicant: MURDIN, Andrew D. et al.  
Filed: December 31, 2002  
TC/A.U.: 1645  
Examiner: Nita M. Minnifield

Docket No: 032931/0261

Commissioner for Patents  
P.O. Box 1450  
Washington, D.C. 20231

**DECLARATION PURSUANT TO 37 CFR § 1.132**

I, Andrew Murdin, Director, External R&D Canada, Aventis Pasteur, hereby declare that:

1. Details of my employment history are as follows:

**Since 2002** Director, External R&D Canada, Aventis Pasteur.

**1999 - 2002** Principal Research Scientist, Aventis Pasteur.

**1997 - 2002** Section Head, Aventis Pasteur

**1993 - 2003** Project Leader (Chlamydia), Aventis Pasteur

**1990 - 1993** Research Scientist, Connaught Laboratories Ltd. (subsequently Pasteur Merieux Connaught, subsequently Aventis Pasteur), Toronto, Canada

**1988 to 1990** - Post-Doctoral Research Associate, Dept. of Microbiology, State University of New York, Stony Brook, NY, USA.

**1985 to 1987** - Post-Doctoral Research Fellow, Dept. of Microbiology, University of Surrey, Guildford, Surrey, England.

**1981 to 1985** - Scientific Officer, Vaccine Research Dept., Animal Virus Research Institute, Pirbright, Surrey, England.

2. Details of my education are as follows:

B.Sc., University of Bath, England, 1980

Ph.D., University of Surrey, England, 1986

3. I have reviewed U.S. patent No. 6,559,294 to Griffais et al. ("Griffais"), which is cited in the Office Action mailed September 11, 2003.

4. Griffais sequenced the *C. pneumoniae* genome and identified 1296 putative open reading frames (see Table 1 of Griffais).

5. Griffais says any of the 1296 open reading frames can be used to make a vaccine. This is incorrect as discussed below.

6. Experiments conducted by the assignee Aventis Pasteur Limited demonstrate that only a few of the 1296 open reading frames can be used as vaccines.

7. Thirty six *C. pneumoniae* open reading frames coding for outer membrane proteins were tested for their ability to protect against *C. pneumoniae* infection in the *in vivo* mouse model. The attached Summary of Protective Results specifies:

- which construct was used for immunization. The constructs were made essentially as described in Examples 1 and 2 of the specification;
- which of Griffais' SEQ ID NOs correspond to the sequences in the construct, and
- whether these sequences confer protection. Testing of the constructs for immuno-protection was performed as described in Example 3 of the specification.

8. The attached Raw Biologic Data show the raw data (bacterial load per lung) in each experiment. The experiments were performed as described in Example 3 of the specification.

9. As is clear from the Summary of Protective Results and the Raw Biologic Data, of the 36 *C. pneumoniae* ORFs tested, only 8 (i.e. 22%) provided a protective effect.
10. These results confirm that Griffais is incorrect in stating that any of the 1296 open reading frames can be used in a vaccine.
11. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

February 11<sup>th</sup> 2004

Date

A handwritten signature in black ink, appearing to read 'Andrew Murdin', written over a horizontal line.

Andrew Murdin,

Director, External R&D Canada

# SUMMARY OF PROTECTIVE RESULTS

Plasmid-ID	Hit Description/Comment	corresponding SEQ ID No from WO99/27105	PROTECTIVE Yes/No	Tested in Screens/Group	WILCOXON "p" value (vs SALINE/PBS immunized-group B-on day 9, unless otherwise noted)
pCAI877	pmp1; putative 98 kDa outer membrane protein; CP 036	15	NO	S8 -group E	day 5-0.7302
					day 9-0.9048
pCAI397	pmp2; putative 98 kDa outer membrane protein; CP 017	25	NO	S3 -group E	day 5-0.5714
					day 9-0.3929
pCAI396	CP 014	28	YES	S4 -group F	S4-day 5-1.75
					S4-day 9-1.75
				S47 -group H	S47-0.007992
pCAI395	pmp4; putative 98 kDa outer membrane protein; CP 013	31/32	NO	S4 -group E	day 5-0.7857
					day 9-1.214
pCAI394	pmp5; putative 98 kDa outer membrane protein; CP 012	33/35	NO	S4 -group D	day 5-0.5714
					day 9-1.429
pCACPNM 200	IncA; inclusion membrane protein	201	NO	S34 -group D	0.2844

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pCAI314	outer membrane protein; CP 008; Incyte 314	291	NO	S2 -group E	S2-day 5-0.7857
				S52 -group E	S2-day 9-0.7857
					S52-1.338
pCAI114	inclusion membrane protein B	304	NO	S17 -group D	0.7546
pCAI115	inclusion membrane protein C; CP 011	305	YES	S10 -group D	S10-day 5-0.03175
				S56 -group K	S10-day 9-0.9048
					S56-0.4136
pCAI111	outer membrane protein Omp85; CP 015	314	NO	S7 -group D	0.7302
pCABk319	OmpH-like outer membrane protein	315	NO	S32 -group H	S32-0.04262
				S47 -group I	S47-0.2284
pCAI368	pmp 6; putative 98 kDa outer membrane protein	466	NO	S17 -group I	1.655
pCAI640	pmp 7; putative 98 kDa outer membrane protein; CP 032	468	NO	S9 -group G	S9-day 5-0.03175
				S56 -group F	S9-day 9-0.9048
					S56-1.665

pCAI639	pmp 8; putative 98 kDa outer membrane protein; CP 031	470	NO	S7 -group F	d9 only-0.9048
pCAI638	pmp 9; putative 98 kDa outer membrane protein; CP 030	472	NO	S41 -group D	S41-0.0293
				S56 -group G	S56-1.338
pCAI635	pmp 10; putative 98 kDa outer membrane protein; CP 029	477	NO	S38 -group I	S38-0.01998
				S57 -group H	S57-0.1812
pCAI634	pmp 11; putative 98 kDa outer membrane protein; CP 028	478	NO	S9 -group F	day 5-0.4127
					day 9-1.27
pCAI633	pmp 12; putative 98 kDa outer membrane protein	479	NO		
pCAI632	POMP91B precursor	480/482	NO	S10 -group G	S10-day 5-0.01587
					S10-day 9-0.5556
				S45 group H	S45-1.655
				S53 -group H	S53-0.1375
pCAI630	POMP91A	485	NO	S10 -group F	day 5-0.1111
					day 9-0.4127
pCAI628	putative 98 kDa outer membrane protein; CP 027	500	NO	S9 -group E	day 5-0.5556
					day 9-0.25

pCAI626	POMP90B precursor	500/501	NO		



pCAI624	putative 98 kDa outer membrane protein	503	NO	S21 -group H	0.5728
pCAI622	POMP90B precursor	506	NO		
pCAI327	POMP91A	577	YES	S18 -group D	S18-0.01265
				S45 -group F	S45-0.4136
				S53 -group F	S53-0.004662
pCAI325	pmp 20; putative 98 kDa outer membrane protein	580	NO		
pCAI711	putative outer membrane protein	580	NO	S18 -group E	0.2824
pCA60kDa	60kDa CrP; outer membrane protein; CP 004	596	YES	S5 -group E	S5-day 5-0.03175
					S5-day 9-0.01587
				S27 -group H	S27-0.001335
				S43 -group J	S43-0.002664
				S44 -group J	S44-vs S43 grp B-0.007992
				S49 -groups J/K/L	S49-J-0.3095
					S49-K-0.9048
					S49-L-0.1508
				S50 -groups F/I	S50-F-0.345
					S50-I-0.000666
				S54 -group J	S54-0.7546

pCAMOMP	major outer membrane protein; in S3-used recombinant CP MOMP; in S20-used CP MOMP ISCOMs	737	YES	S1 -group D	S1-day 5-0.3929
					S1-day 9-1.75
				S3 -group F	S3-day 5-0.25
					S3-day 9-0.7857
				S16 -groups D/G/H/F	S16-D-0.2468
					S16-G-0.1775
					S16-H-0.6991
					S16-F-0.1255
				S20 -group H	S20-0.05927
				S27 -group I	S27-0.0293
				S31 -groups D/E/F/G/H/I	S31-D-0.04262
					S31-E-0.001332
					S31-F-0.5728
					S31-G-0.8518
					S31-H-0.1812
					S31-I-1.427
				S50 -groups E/I	S50-E-0.002664
					S50-I-0.000666
pCAI555a	76 kDa protein-alternative reading frame	776/775	YES	S51 -group F	0.01399

pCAI419	PilG		876	NO	S10 -group E	S10-day 5-0.01587
						S10-day 9-0.1111
					S45 -group E	S45-1.509
					S53 -group E	S53-0.9452
pCACPNM 879	Predicted OMP		877	NO	S37 -group E	needed to be retested and never was
pCACPNM 882	Hypothetical protein; sec. locus ORF		880	NO	S44 -group I	S44-vs S43 grp B-0.0293
					S52 -group G	S52-0.7546
					S54 -group I	S54-0.662
pCAI473	Unannotated Orf		1035	YES	S23 -group I	0.08125
pCA9kDa	9kDa CrP; CP003		597	NO	S5 -group D	day 5-0.2857
						day 9-0.1905

# RAW BIOLOGIC DATA

**Note:**  
sample  
dilutions S1-S7 - 1:50 and 1:100, in duplicate  
S8-S57 - 1:50 and 1:100; 1:100 and 1:200

Screen #	S1
Date	

Notebook #	1837
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pCAIMOMP      Genset SEQ ID NO 737

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:100	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B, same day)	Immunized with
B1	5	5	20	5	15	5000	8000	6500	2400	2896.42523	na	PBS
B2	5	0	0	2	0	0	800	400				
B3	5	0	1	1	0	200	400	300				
B4	9	14	61	19	32	15000	20400	17700	7800	7052.65907	na	PBS
B5	9	2	11	2	11	2600	5200	3800				
B6	9	2	8	0	4	2000	1600	1800				
D1	5	6	48	5	4	11000	3600	7300	3480	2318.82758	0.3929	DNA CP 001
D2	5	1	8	4	2	1800	2400	2100				MOMP
D3	5	0	10	4	13	2000	6800	4400				
D4	5	4	2	7	6	1200	5200	3200				
D5	5	0	4	0	0	800	0	400				
D6	9	3	2	0	1	1000	400	700	1300	927.36185	1.75	DNA CP 001
D7	9	6	5	0	0	2200	0	1100				MOMP
D8	9	10	2	6	0	2400	2400	2400				
D9	9	0	0	0	0	0	0	0				
D10	9	21	0	1	0	4200	400	2300				

Screen #		S2		Notebook #		1837		pCAI314		Genset SEQ ID NO 291		
Date				Page #		6						
Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B, same day)	Immunized with
B1	5	24	12	12	19	7200	12400	9800	10466.8667	2334.28552	na	saline
B2	5	42	34	15	15	15200	12000	13600				
B3	5	14	22	8	14	7200	8900	8000				
B4	9	47	45	11	25	18400	14400	16400	17066.6667	4877.64376	na	saline
B5	9	18	41	8	21	11800	11800	11700				

B6	9	65	64	31	20	25600	20400	23100				
E1	5	43	5	23	23	9600	18400	14000	9820	5306.37353	0.7657	DNA CP 008
E2	5	24	43	8	2	13400	4000	8700				Incyle 314
E3	5	34	15	24	27	9600	20400	15100				
E4	5	26	53	16	0	15600	6400	11100				
E5	5	1	1	0	0	400	0	200				
E6	9	11	8	5	4	3600	3600	3700	5640	3015.02902	0.7657	DNA CP 008
E7	9	53	22	19	0	15000	7600	11300				Incyle 314
E8	9	9	1	23	3	2000	10400	6200				
E9	9	16	6	6	2	4400	3200	3600				
E10	9	13	5	4	3	3600	2800	3200				

Screen # 3	S3
Date	

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pCA1397 Genset SEQ ID NO 25

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value vs grp B, same day	Immunized with
B1	5	26	34	10	15	12600	10000	11300	40900	33961.2857	na	saline
B2	5	226	183	126	106	63900	62900	86300				
B3	5	61	48	36	28	21400	24900	25100				
B4	9	26	22	18		9600	7200	8400	9398.69687	3777.41828	na	saline
B5	9	5	10	7	12	3000	7600	5300				
B6	9	39	39	17	16	15600	13200	14400				
E1	5	22	254	85	123	55200	62400	86800	44400	19601.9116	0.5714	DNA CP 017
E2	5	12	153	46	99	33000	58000	45500				Incyte 397
E3	5	43	123	34	59	33200	37200	36200				
E4	5	116	99	64	47	43000	44400	43700				
E5	5	23	123	5	96	29200	29400	28900				
E6	9	56	208	55	95	52400	80000	59200	21980	19040.9091	0.3929	DNA CP 017
E7	9	42	84	3	49	25200	20900	23000				Incyte 397
E8	9	6	33	12	14	7800	10400	9100				
E9	9	6	23	8	12	5900	8000	6900				
E10	9	9	68	12	20	15400	12800	14100				
F1	5	26	17	31	10	8900	19400	12500	10660	3161.3021	0.25	rec. CP MOMP
F2	5	32	27	7	11	11800	7200	9500				
F3	5	9	18	5	7	5400	4800	5100				
F4	5	43	23	12	28	13200	15200	14200				
F5	5	22	30	20	14	10400	13600	12000				
F6	9	18	12	14	7	6000	8400	7200	11420	5298.58489	0.7857	rec. CP MOMP
F7	9	9	11	8	6	4000	4800	4400				
F8	9	62	65	10	20	25400	12000	18700				
F9	9	48	27	11	6	15000	8600	10900				
F10	9	43	32	13	29	15000	16900	15900				

Screen #	S4
Date	

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pCAI394 Genset SEQ ID NO 33/35  
pCAI395 Genset SEQ ID NO 31/32  
pCAI396 Genset SEQ ID NO 28

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs Grp B, same day)	Immunized with
B1	5	52	39	15	12	18200	10800	14500	21800	17592.2331	na	saline
B2	5	144	102	39	87	48200	42400	45800				
B3	5	12	7	2	11	3800	5200	4500				
B4	9	38	45	28	25	18200	21200	18700	11466.8687	5134.41547	na	saline
B5	9	20	19	8	9	7800	8800	7300				
B6	9	12	28	9	13	8800	8800	8400				
D1	5	102	85	52	43	37400	38000	37700	27080	11345.5895	0.5714	DNA CP 012
D2	5	65	51	28	28	23200	22400	22800				Incyle 394
D3	5	52	45	7	17	19400	9800	14500				
D4	5	28	52	28	18	15600	18800	17200				
D5	5	89	106	75	43	39000	47200	43100				
D6	9	58	28	34	12	18400	18400	17400	9080	5251.81873	1.428	DNA CP 012
D7	9	44	32	13	9	15200	8800	12000				Incyle 394
D8	9	13	6	4	4	3800	3200	3500				
D9	9	17	14	2	1	8200	1200	3700				
D10	9	23	29	11	7	10400	7200	8800				
E1	5	44	42	22	28	17200	20400	18800	21840	15249.7344	0.7857	DNA CP 013
E2	5	45	43	7	13	17800	8000	12800				Incyle 395
E3	5	14	11	8	8	5000	6400	5700				
E4	5	47	55	26	28	20400	20800	20600				
E5	5	122	121	60	70	48800	52000	50300				
E6	9	41	72	44	58	22600	40000	31300	18220	17153.2388	1.214	DNA CP 013
E7	9	1	0	1	1	200	800	500				Incyle 395
E8	9	115	118	58	53	48200	44400	45300				
E9	9	12	13	10	9	5000	7600	6300				
E10	9	16	17	13	9	6800	8800	7700				
F1	5	12	1	5	10	2600	8000	4300	8540	3828.11788	1.75	DNA CP 014
F2	5	34	39	10	20	14600	12000	13300				Incyle 398
F3	5	32	31	11	12	12800	9200	10800				
F4	5	20	5	7	8	5000	6000	5500				
F5	5	41	34	15	18	15000	12400	13700				
F6	9	23	28	18	15	8800	13200	11500	4400	3658.8818	1.75	DNA CP 014
F7	9	8	5	1	6	2800	2800	2700				Incyle 398
F8	9	12	10	3	4	4400	2800	3600				
F9	9	5	5	0	0	2000	0	1000				





Screen #	S5	Notabook #	1837	pCA9kDa	Genset SEQ ID NO 597							
Date		Page #	24	pCA60kDa	Genset SEQ ID NO 596							
Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:100	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value/vs grp B, same day	Immunized with
B1	5	0	4	2	5	800	2800	1800	1680	331.058607	na	saline
B2	5	3	3	1	2	1200	1200	1200				
B3	5	5	2	4	3	1400	2800	2100				
B4	5	6	5	3	1	2200	1600	1900				
B5	5	7	3	2	0	2000	800	1400				
B6	9	3	0	1	3	600	1600	1100	4320	4139.75645	na	saline
B7	9	10	1	5	0	2200	2000	2100				
B8	9	33	19	26	10	10400	14400	12400				
B9	9	7	8	8	4	3000	4800	3900				
B10	9	5	6	4	0	2600	1600	2100				
D1	5	10	6	7	4	3200	4400	3800	5000	3739.65239	0.2637	DNA CP 003
D2	5	5	2	3	5	1400	3200	2300				CPCRMP 9 kD
D3	5	21	27	22	11	9600	13200	11400				
D4	5	8	5	2	5	2200	2800	2500				
D5	9	3	8	4	2	1600	2400	2100	1400	913.763344	0.1805	DNA CP 003
D6	9	4	0	0	0	800	0	400				CPCRMP 9 kD
D7	9	3	1	1	0	800	400	600				
D8	9	8	3	3	4	2200	2800	2500				
E1	5	0	0	1	0	0	400	200	525	471.039092	0.03175	DNA CP 004
E2	5	1	0	0	0	200	0	100				CPCRMP 60 kD
E3	5	1	4	0	0	1000	0	500				
E4	5	4	3	3	0	1400	1200	1300				
E5	9	1	0	0	1	200	400	300	125	129.903811	0.01587	DNA CP 004
E6	9	0	0	0	0	0	0	0				CPCRMP 60 kD
E7	9	0	0	0	1	0	400	200				
E8	9	0	0	0	0	0	0	0				

Screen #	S7	Notabook #	1537	pCA1111	Genset SEQ ID NO 314
Date		Page #	35	pCA1369	Genset SEQ ID NO 470

nc = not counted (due to background)  
 There were problems with background. Therefore counting of inclusions was very difficult.  
 Only day 9 samples were counted at 1:100 dilution. Where count of 1:100 dilution was low,  
 count of 1:50 dilution was made.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value vs grp B, same day)	Immunized with
B6	9	nc	nc	121	183		121600	121600	57380	44186.036	na	saline
B7	9	nc	nc	93	112		82000	82000				
B8	9	13	16	4	3	5800	2900	4300				
B9	9	30	38	9	15	13200	9600	11400				
B10	9	nc	nc	85	84		67800	67800				
D5	9	nc	nc	119	165		125600	125600	99700	18278.5134	0.7302	DNA CP 015
D6	9	nc	nc	94	115		83600	83600				CPN100111
D7	9	nc	nc	121	132		101200	101200				
D8	9	nc	nc	99	122		89400	89400				
F5	9	18	41	4	21	11800	10000	10800	81025	29555.6727	0.8048	DNA CP 031
F6	9	nc	nc	87	101		75200	75200				CPN100839
F7	9	nc	nc	86	91		70800	70800				
F8	9	nc	nc	105	113		87200	87200				

Screen #	S8
Date	

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pCA1877 Genset SEQ ID NO 15

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value/vs grp B, same day)	Immunized with
B1	5	229	135	143	71	91800	111200	113800	106900	198720	88920.1973	na	saline
B2	5	365	190	170	88	146000	144000	140800	143700				
B3	5	510	353	379	160	204000	262800	250800	281400				
B4	5	719	439	358	148	287600	317600	236800	289900				
B5	5	479	261	262	98	191600	206200	156800	191700				
B6	9	132	69	75	20	52800	57800	32000	50000	137280	132556.228	na	saline
B7	9	151	63	71	27	60400	53800	43200	52700				
B8	9	155	75	84	22	62000	63600	35200	59100				
B9	9	373	113	211	76	148200	125600	121600	132500				
B10	9	1089	425	580	213	435200	402000	340800	395100				
E1	5	483	242	240	132	185200	102800	211200	105500	337950	106397.944	0.7302	DNA CP 038
E2	5	1210	809	509	269	484000	479200	430400	488200				CPN100877
E3	5	830	331	345	157	332000	270400	251200	281000				
E4	5	1041	647	450	209	418400	439800	334400	407100				
E5	9	2448	1323	1590	915	978200	1165200	1494000	1193400	833925	517291.124	0.8048	
E6	9	2758	1435	1379	661	1103200	1125600	1057600	1103000				
E7	9	140	89	66	35	50000	54000	59000	55000				
E8	9	513	237	234	97	205200	189400	155200	184300				

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pCAI628      Genset SEQ ID NO 500  
pCAI634      Genset SEQ ID NO 478  
pCAI640      Genset SEQ ID NO 468

Mouse ID	Day post challenge	Plate A Incubations per well @ 1:50	Plate A Incubations per well @ 1:100	Plate B Incubations per well @ 1:100	Average IFU per mg @ 1:50	Average IFU per mg @ 1:100	Average IFU per mg @ 1:200	Average IFU per mg	Group mean IFU/mg	Group SD IFU/mg	Wilcoxon p-value (vs grp B, same day)	Immunized with
B1	5	2054	1238	1198	821900	960400	960400	934200	885240	255080.862	na	saline
B2	5	1804	844	780	641800	810600	830400	838600				
B3	5	452	301	327	180800	251200	224000	226800				
B4	5	2082	1182	1083	832800	906000	860400	908800				
B5	5	1970	999	872	788000	748400	585600	717600				
B6	9	1188	577	583	478400	458000	585600	494000	238080	138450.158	na	saline
B7	9	481	203	248	189400	179600	168400	186500				
B8	9	704	234	311	281600	216000	264000	245400				
B9	9	487	212	241	188800	181200	148800	174500				
B10	9	282	134	98	116800	82800	81600	86000				
E1	5	1069	605	605	427000	484000	484000	472500	568875	322172.808	0.3556	DNA pCAI 628
E2	5	1126	577	633	450400	484000	540800	469800				
E3	5	2384	1210	1337	945600	1018800	1385200	1094600				
E4	5	534	325	231	213600	222400	212800	217800				
E5	9	DEAD	DEAD	DEAD	DEAD	DEAD	DEAD	DEAD	148733.333	8003.51748	0.25	DNA pCAI 628
E6	9	392	197	152	156800	139600	130200	143800				
E7	9	381	208	191	152400	158800	148800	155100				
E8	9	439	197	148	175600	138000	113600	141300				
F1	5	2800	1590	1548	1120000	1255200	1283200	1228400	488300	448115.571	0.4127	DNA pCAI 634
F2	5	537	220	270	214800	196000	208400	203300				
F3	5	245	107	115	88000	88800	96000	92900				
F4	5	850	454	418	260000	348800	436800	348600				
F5	9	457	184	155	182800	135600	153600	151600	354650	245802.868	1.27	DNA pCAI 634
F6	9	187	78	117	68800	77200	82400	70900				
F7	9	1168	605	830	487200	574000	652800	587000				
F8	9	1252	732	830	500800	624800	704800	628800				
G1	5	393	181	162	157200	141200	132800	143100	189775	38538.486	0.03175	DNA pCAI 640
G2	5	592	288	217	236800	202400	177600	204800				
G3	5	572	288	177	228800	185200	187200	186800				
G4	5	872	333	250	288800	232000	283200	254600				
G5	9	1097	507	441	438800	376200	297600	373700	373100	50588.368	0.8046	DNA pCAI 640
G6	9	748	422	388	289400	328000	208600	291000				
G7	9	1097	507	523	438800	412000	355200	404500				
G8	9	1238	581	532	485200	448200	288200	423200				

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pCAI115 Genset SEQ ID NO 305  
pCAI419 Genset SEQ ID NO 876  
pCAI630 Genset SEQ ID NO 485  
pCAI632 Genset SEQ ID NO 480/482

Note: samples tested at 1:100, 1:200, 1:200 and 1:400 in this screen  
\*\* This sample was tested at 1:50, 1:100, 1:100 and 1:200. These dilutions were factored into the calculation for Average IFU/ing for G1.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:100	Plate A Inclusions per well @ 1:200	Plate B Inclusions per well @ 1:200	Plate B Inclusions per well @ 1:400	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung @ 1:400	Average IFU per lung	Group mean IFU/ing	Group SD IFU/ing	Wilcoxon p value (vs grp B, same day)	Immunized with
B1	5	381	216	178	144	304800	313600	460800	348200	428800	236800.267	na	saline
B2	5	238	105	122	80	190400	181600	250000	202400				
B3	5	480	278	242	148	384000	416000	473600	422400				
B4	5	364	100	201	80	291200	304800	256000	286200				
B5	5	1112	593	574	292	896600	909600	838400	866800				
B6	9	61	36	57	19	64800	74400	90800	86800	157060	83783.3669	na	saline
B7	9	367	175	205	74	263600	304000	236800	284800				
B8	9	136	70	110	41	108800	144000	131200	132000				
B9	9	100	30	66	25	80000	76800	80000	78400				
B10	9	257	119	169	69	205600	230400	220800	221800				
D1	5	166	64	94	29	134400	142400	92800	128000	137750	76908.1758	0.03175	DNA pCAI 115
D2	5	342	177	168	70	273600	276000	224000	262400				
D3	5	157	59	73	29	125600	104800	92800	107000				
D4	5	62	40	37	13	49600	61600	41600	53600				
D5	9	331	176	143	63	264800	255200	201600	244200	133550	96781.341	0.8046	DNA pCAI 115
D6	9	96	51	56	17	76800	85600	54400	75000				
D7	9	165	71	82	42	132000	122400	134400	127600				
D8	9	123	62	57	18	98400	95200	57600	66600				
E1	5	298	139	82	51	238400	176800	163200	188800	118100	86372.2567	0.01587	DNA pCAI 419
E2	5	92	48	49	18	73600	77800	57600	71600				
E3	5	296	104	138	41	212800	169600	131200	162800				
E4	5	42	21	21	5	33600	33600	18000	26200				
E5	9	4	2	4	2	3200	4800	6400	4800	63150	42782.8662	0.1111	DNA pCAI 419
E6	9	71	25	37	16	56800	49600	51200	51600				
E7	9	128	72	100	37	102400	137600	116400	124000				
E8	9	80	28	64	24	64000	73600	76800	72000				
F1	5	206	125	126	66	164800	200800	277600	196000	195550	128035.791	0.1111	DNA pCAI 630
F2	5	481	247	278	125	384800	420000	400000	408200				
F3	5	147	49	85	32	117600	91200	102400	100800				
F4	5	109	43	49	26	87200	73600	83200	79400				
F5	9	173	80	57	17	136400	93600	54400	65000	69150	77620.3621	0.4127	DNA pCAI 630
F6	9	304	111	152	76	243200	210400	243200	226800				

F7	9	63	30	39	6	68400	55200	25600	50600				
F8	9	31	10	19	8	24800	23200	25600	24200				
G1**	5	429	275	163	77	171600	175200	123200	161300	124025	33008.5122	0.01587	DNA pCA 632
G2	5	153	72	65	29	122400	109600	92800	106600				
G3	5	212	128	91	23	169600	175200	73600	148400				
G4	5	87	40	79	16	89600	95200	51200	77800				
G5	9	124	48	33	12	92200	83200	38400	86600	122450	43813.3867	0.5556	DNA pCA 632
G6	9	274	118	120	48	210200	190400	153600	188400				
G7	9	168	87	74	30	134400	112800	96000	114000				
G8	9	209	65	58	38	167200	98400	121600	121600				

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pCAIMOMP Genset SEQ ID NO 737

Important Note:

An error was made in Group B, where the mice were challenged with saline instead with C.p.  
In order to calculate Wilcoxon p values, use Group B values from Screen 14, as date of study and IFU values are similar. S14 values are in RED.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs S14 grp B)	Immunized with
B1	9	0	0	0	0	0	0	0	0	0	0	Screen 14	saline
B2	9	0	0	0	0	0	0	0	0	0	0	Ave IFU/lung values:	no challenge
B3	9	0	0	0	0	0	0	0	0	0	0	63800	
B4	9	0	0	0	0	0	0	0	0	0	0	331600	
												239800	
												15000	
												101600	
D1	9	18	10	6	2	7200	6400	3200	5600	12600	9078.60409	0.2488	DNA pCAI MOMP
D2	9	106	36	34	14	42400	28000	22400	30200				
D3	9	37	11	10	5	14800	8400	6000	9600				
D4	9	83	32	16	2	33200	19200	3200	16700				
D5	9	0	0	0	0	0	0	0	0				
D6	9	42	13	15	3	16800	11200	4800	11000				
F1	9	14	8	10	4	5600	7200	9400	6600	3850	2157.73801	0.1255	DNA pCAI MOMP + 784D
F2	9	15	7	6	3	6000	5200	4800	5300				
F3	9	0	0	0	0	0	0	0	0				
F4	9	13	7	3	0	5200	4000	0	3300				
F5	9	18	7	4	3	7200	4400	4800	5200				
F6	9	13	2	3	1	5200	2000	1600	2700				
G1	9	16	11	3	1	6400	5600	1800	4500	7896.66887	5195.08315	0.1773	DNA pCAI MOMP + MOMP ISCOMs
G2	9	42	24	16	5	16800	16000	8000	14200				
G3	9	16	11	6	1	6400	7600	1600	5600				
G4	9	57	28	11	4	22600	15600	9400	15100				
G5	9	37	6	5	3	14800	5200	4800	7500				
G6	9	2	1	0	0	800	400	0	400				
H1	9	378	169	111	75	151600	111600	120000	123700	62296.6887	31906.7217	0.6981	DNA pCAI MOMP challenge with CWL 029
H2	9	148	86	77	34	59200	46200	54400	63200				
H3	9	56	22	20	14	22400	16800	22400	19600				
H4	9	124	79	69	31	49800	59200	49600	54400				
H5	9	132	58	57	16	52800	46000	25600	42800				
H6	9	215	109	93	21	96000	80800	33600	70300				
I1	9	96	49	39	30	38400	35200	48000	36200	55568.6887	20404.7925	na	PBS challenge with
I2	9	86	46	37	24	34400	33200	38400	34900				

13	g	189	83	60	41	75600	85200	85600	67900			CWL 029
14	g	200	111	131	68	60000	108000	95500				
15	g	116	53	60	37	48400	45200	59200	49300			
16	g	151	77	66	23	60400	57200	36400	52800			





D2	9	48	17	14	5	18200	12400	8000	13000			
D3	9	31	13	10	9	12400	8200	14400	11300			
D4	9	9	5	6	2	3800	4400	3200	3500			
D5	9	55	18	34	10	22000	20800	16000	19900			
D6	9	42	28	34	12	16800	24800	18200	21400			
E1	9	125	78	76	31	50000	60800	49800	55300	27821.0951	0.2824	DNA pCai 711
E2	9	35	21	19	8	14000	16000	12800	14700			
E3	9	82	32	46	20	32800	31200	32000	31800			
E4	9	284	115	121	59	105500	94400	89600	96000			
E5	9	50	28	45	14	20000	25400	22400	24900			
E6	9	66	28	33	7	28400	24400	11200	21800			



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Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	194	118	109	63	77000	98000	100900	90000	141797.5	129234.762	na	PBS
B2	9	156	86	104	40	62400	76000	64000	68600				
B3	9	298	155	182	98	119200	134800	158800	136400				
B4	9	961	582	618	305	384000	480000	480000	459100				
B5	9	387	179	222	124	146800	160400	189400	166500				
B6	9	145	78	60	18	58000	55000	28800	48500				
B7	9	32	21	11	10	12800	12800	18000	13600				
B8	9	356	216	193	83	142400	163600	132600	150600				
I1	9	83	42	60	19	33200	40800	30400	36300	50333.3333	18202.2587	0.08125	DNA pCAI 473
I2	9	78	66	86	22	31200	52600	35200	43000				
I3	9	159	65	80	33	63600	58000	52800	56100				
I4	9	160	65	90	33	72000	62000	52800	62200				
I5	9	75	28	32	10	30000	24000	18000	23500				
I6	9	215	77	122	44	86000	79600	70400	76900				



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pCAIMOMP Genset SEQ ID NO 737

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	135	60	87	38	54000	50000	57600	53300	47525	28892.9382	na	PBS
B2	9	147	80	51	29	58800	52400	49400	52500				
B3	9	142	75	71	33	58800	58400	52800	56600				
B4	9	304	136	141	69	121600	110800	110400	113400				
B5	9	79	49	29	19	31600	31200	30400	31100				
B6	9	81	37	28	11	24400	28600	17600	23500				
B7	9	45	11	15	6	18000	10400	8600	12100				
B8	9	89	59	42	19	38600	40400	30400	37700				
D1	9	23	13	12	8	9200	10000	12800	10500	20550	8151.43137	0.04282	DNA pCAI MOMP IN + IM
D2	9	37	18	24	14	14800	16000	22400	17300				
D3	9	65	31	49	28	26000	32000	41600	32800				
D4	9	41	15	15	9	16400	12000	14400	13700				
D5	9	38	17	27	18	15600	17600	25600	19100				
D6	9	64	24	43	25	25600	26800	40000	28800				
E1	9	11	3	3	1	4400	2400	1600	2700	7266.66667	4585.72695	0.001332	DNA pCAI MOMP IM only
E2	9	33	16	20	7	13200	14400	11200	13300				
E3	9	17	8	14	4	8800	8800	8400	7700				
E4	9	25	16	19	6	10000	14000	9600	11800				
E5	9	20	9	15	2	8000	9600	3200	7600				
E6	9	2	1	0	0	800	400	0	400				
F1	9	34	16	17	7	13600	13200	11200	12800	38083.3333	27697.934	0.5726	DNA pCAI MOMP IN only
F2	9	149	54	69	20	59600	49200	32000	47500				
F3	9	108	35	47	12	43200	32800	19200	32000				
F4	9	2	1	0	1	800	400	1600	800				
F5	9	122	54	60	33	48800	45600	52800	48200				
F6	9	264	101	113	45	105600	85900	72000	87200				
G1	9	47	11	31	12	18600	16800	19200	17900	54283.3333	45978.0696	0.8516	DNA pCAI MOMP + 76 KD IN + IM
G2	9	57	14	14	7	22800	11200	11200	14100				
G3	9	56	24	26	12	22400	20000	19200	20400				
G4	9	278	100	132	67	110400	92900	107200	100900				
G5	9	118	50	80	14	47200	44000	22400	39400				
G6	9	415	156	194	54	196000	140000	66400	133100				
H1	9	112	58	43	28	44800	40400	44800	42800	25866.6667	12753.3673	0.1812	DNA pCAI MOMP + 76 KD IM only
H2	9	80	46	39	22	32000	34000	35200	33600				
H3	9	50	22	26	9	20000	19200	14400	18200				
H4	9	42	14	17	12	16800	12400	19200	15200				
H5	9	25	7	13	4	10000	8000	6400	8100				

H6	9	111	41	49	22	44400	38000	35200	37600		
11	9	54	30	28	18	21600	23200	28900	24200	70168 6087	33338 0957
12	9	112	58	44	24	44800	40800	36400	41200		
13	9	277	122	137	51	110800	103600	81600	99600		DNA pCAI MOMP + 78 KD
14	9	328	152	158	71	130400	124000	113600	123000		IN only
15	9	170	87	94	39	68000	72400	82400	88800		
16	9	207	71	91	27	82800	64800	43200	63900		

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**pCABk319      Genset SEQ ID NO 315**

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	141	91	72	50	56400	65200	80000	61987.5	26864.6124	na	PBS
B2	9	148	106	68	43	59200	69600	68600				
B3	9	134	85	65	36	53600	52000	57600				
B4	9	91	55	49	22	36400	41600	38700				
B5	9	324	172	151	75	126000	126200	127000				
B6	9	54	31	40	21	21600	24600	38600				
B7	9	80	47	61	14	32000	43200	35200				
B8	9	173	103	96	53	69200	60800	64800				
H1	9	93	54	35	27	37200	35600	43200	28916.6867	18064.2224	0.04262	DNA pCABk 319
H2	9	35	17	13	7	14000	12000	12300				
H3	9	102	45	52	27	40800	36800	43200				
H4	9	0	0	0	0	0	0	0				
H5	9	116	58	54	26	46400	44800	41600				
H6	9	69	30	40	14	27600	26000	22400				

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**pCACPNM200      Genset SEQ ID NO 201**

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	432	231	229	128	172600	164000	204600	141587.5	84314.2253	na	PBS
B2	9	422	210	222	109	168600	172600	174400				
B3	9	129	85	76	42	51600	56400	67200				
B4	9	676	348	424	233	270400	306800	372600				
B5	9	312	149	159	76	124800	123200	121600				
B6	9	130	87	64	36	52000	53600	57600				
B7	9	407	219	207	113	162600	170400	190800				
B8	9	125	76	63	32	50000	55600	51200				
D2	9	129	63	77	36	51600	56000	57600				
D3	9	550	213	262	172	220000	202000	276200	76180	76030.7734	0.2844	DNA pCACPNM 200
D4	9	80	31	37	16	24000	27200	26600				
D5	9	10	4	3	1	4000	2900	2600				
D6	9	182	88	89	41	72600	74600	65600				
D1	9	0	0	0	0	0	0	0	omitted from calculations			

Screen #	S38	1941	1941
Date		Page #	Page #

**pCAI635      Genset SEQ ID NO 477**



Date		Page #		62									
Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with	
B1	9	365	188	206	108	146000	158000	172800	158700	164537.5	7042.6134	na	PBS
B2	9	640	345	259	137	256000	241600	218200	238600				
B3	9	364	220	229	109	145600	178800	174400	189800				
B4	9	427	175	193	116	170800	147200	168800	183500				
B5	9	271	151	113	77	108400	105600	123200	110700				
B6	9	288	142	109	71	115200	113600	113600	107400				
B7	9	797	381	377	188	318800	307200	268800	300500				
B8	9	177	80	88	47	70800	59200	75200	86100				
I1	9	275	137	157	92	110000	117600	147200	123100	68756.6667	44324.36	0.01888	DNA pCAI 635
I2	9	128	51	86	38	51200	54800	60800	55400				
I3	9	128	68	68	31	50400	54400	49600	52200				
I4	9	304	134	189	88	121600	126200	156900	134200				
I5	9	72	28	57	13	28800	34400	20800	26800				
I6	9	53	25	21	9	21200	18400	14400	18100				



Screen #	S44
Date	

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pCACPNM882 Genset SEQ ID NO 880  
pCA60KDa Genset SEQ ID NO 596

Highlighted section is excluded from the calculation. Group B values from Screen 43 will be used for Wilcoxon p value calculation. S43 values are in RED.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs S43 grp B)	Immunized with
B1	9	130	77	99	65	52000	70400	104000	142850	38040.6033	208800	PBS
B2	9	59	26	32	33	29000	23200	52800			70000	
B3	9	85	44	48	25	38600	36600	40000			226700	
B4	9	39	20	26	14	15900	20900	19600			178600	
B5	9	428	225	223	103	171200	178200	194800			424100	
B6	9	468	220	287	102	187200	176000	183200			242200	
B7	9	282	153	149	82	112800	120800	131200			258000	
B8	9	240	111	122	53	96000	83200	84800			59000	
I1	9	47	15	24	14	18800	15900	22400	18100	77500	0.0283	DNA pCACPNM 882
I2	9	313	180	187	84	125200	130800	134400				
I3	9	185	81	93	49	74000	69600	78400				
I4	9	125	69	66	35	50000	54000	59000				
I5	9	180	45	100	41	72000	56000	63400				
I6	9	374	143	162	71	148900	122000	113600				
J1	9	105	71	82	29	42000	61200	46400	58518.6967	26865.781	0.007982	DNA pCA CRMP 80 KD
J2	9	68	46	59	28	27200	42000	44800				
J3	9	213	139	164	64	85200	121200	102400				
J4	9	34	24	29	19	13600	21200	30400				
J5	9	146	72	91	39	58400	65200	82400				
J6	9	153	65	100	46	61200	66000	76800				

Screen #	S47
Date	

Notebook #	1941
Page #	128

pCAI396 Genset SEQ ID NO 28  
pCABK319 Genset SEQ ID NO 315

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	365	183	191	91	146000	149600	145600	147700	325950	na	PBS
B2	9	472	225	238	121	168800	165200	193600				
B3	9	578	295	306	156	231200	240400	249600				
B4	9	1009	448	481	232	403600	375600	371200				
B5	9	756	388	389	201	302400	302800	321600				
B6	9	1716	1384	1471	625	690400	1142000	1320000				
B7	9	374	200	191	83	149600	159400	148800				
B8	9	276	150	143	77	110400	117200	123200				

H1	9	151	53	68	37	60400	49400	56200	54100	88000	51311.0774	0.007982	DNA PCA 396
H2	9	221	93	114	83	89400	82800	100800	88700				
H3	9	160	97	86	35	84000	73200	58000	86500				
H4	9	487	255	236	144	194800	198400	230400	204500				
H5	9	188	57	93	34	75200	60000	54400	82400				
H6	9	305	112	156	89	122000	107200	110400	111700				
I1	9	248	108	127	51	98200	83200	81800	81800	174283.333	128438.384	0.2284	DNA PCA 319
I2	9	851	384	478	186	340400	317200	297600	318100				
I3	9	1039	435	526	219	415600	384400	350400	383700				
I4	9	148	74	81	36	58200	62000	57800	60200				
I5	9	396	131	198	63	159400	130800	108800	130200				
I6	9	167	54	83	38	68800	58800	62400	61700				

Screen #	S49
Date	

Notabook #	1941
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pCA60kDa Genset SEQ ID NO 596

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs matched group)	Immunized with
C37BL/6													
D1	9	365	181	187	84	148000	138200	102400	131700	106520	81892.2218	na	PBS
D2	9	514	257	279	131	205800	214400	208600	211000				
D3	9	258	116	133	56	103200	98600	98600	98600				
D4	9	136	81	74	26	54400	54000	41800	51000				
D5	9	109	49	87	17	43800	46400	27200	40900				
Balb/c													
E1	9	263	135	127	58	113200	104800	82800	103900	18740	75974.0377	na	PBS
E2	9	903	413	403	180	381200	329400	304000	325600				
E3	9	511	238	241	115	204400	190800	184000	182500				
E4	9	397	209	203	105	158800	164800	168000	184100				
E5	9	389	205	183	88	155900	159200	140800	153700				
Balb/c													
F1	9	74	31	39	21	28600	26000	33800	29800	76380	32203.3168	na	PBS
F2	9	188	111	102	53	76200	85200	84800	83800				
F3	9	223	120	109	64	89200	91800	102400	93700				
F4	9	149	84	77	40	58600	64400	64000	63100				
F5	9	329	156	163	75	131600	127600	120000	126700				
C37BL/6													
J1	9	33	11	16	14	13200	10800	22400	14300	58540	47740.7634	vs group D 0.3985	DNA pCA CRMP 60KD
J2	9	338	168	189	101	134400	142000	161800	145200				
J3	9	148	68	79	38	58400	58600	60800	59200				
J4	9	48	12	23	8	18200	14000	12800	15000				
J5	9	150	82	57	26	80000	47800	41800	48200				
Balb/b													
K2	9	1028	498	513	246	411200	404400	393600	403400	225375	139902.253	vs group E 0.8048	DNA pCA CRMP 60KD
K3	9	253	120	137	63	101200	102800	100800	101900				
K4	9	821	387	401	184	329400	315200	284400	313300				
K5	9	189	112	98	55	75900	84000	80000	82900				
K1	9	0	0	0	0	0	0	0	0	omitted from calculations			
Balb/c													
L1	9	23	9	22	8	8200	12400	12800	11700	34860	36631.7037	vs group F 0.1508	DNA pCA CRMP 50KD
L2	9	54	24	17	6	21600	19400	9800	16000				
L3	9	83	39	49	22	33200	35200	35200	34700				
L4	9	23	5	11	2	9200	6400	3200	8300				
L5	9	261	125	149	83	104400	109600	100800	106100				

Screen #	S50
Date	

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pCA60kDa      Genset SEQ ID NO 596  
 pCAIMOMP + pCA60kDa + pCAI764 + pCAI555a

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	729	370	363	166	291600	263200	313600	297900	217937.5	103234.453	na	PBS
B2	9	876	451	439	227	350400	359000	363200	356400				
B3	9	523	243	312	151	206200	222000	241600	223700				
B4	9	269	150	159	71	118600	123600	113600	120100				
B5	9	885	459	479	227	354000	376200	363200	366900				
B6	9	271	148	169	86	108400	134800	137600	126900				
B7	9	354	195	223	105	141600	167200	168000	161000				
B8	9	184	120	117	57	73600	84800	81200	88800				
F1	9	442	218	250	108	176800	191200	172800	183000	152100	79111.8617	0.345	DNA pCA CRMP 60
F2	9	136	80	79	24	54400	55600	36400	51000				
F3	9	177	83	99	38	70800	64800	60800	65300				
F4	9	814	278	340	167	245600	247200	267200	251800				
F5	9	253	148	169	79	101200	127200	126400	126500				
F6	9	596	315	320	136	238400	254000	217600	241000				
I1	9	81	39	66	25	32400	42000	40000	39100	35398.6667	15656.2731	0.000668	mixture of DNAs
I2	9	64	28	24	11	25600	20000	17600	20800				MOCP
I3	9	47	17	23	9	18800	16000	14400	16300				CRMP 80
I4	9	87	38	29	16	28800	26800	25600	26500				pCAI 764
I5	9	121	77	59	28	48400	54400	41600	49700				pCAI 555
I6	9	162	80	64	37	64800	57600	59200	58600				

Screen #	S51
Date	

Notesbook #	1841
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pCAI555a      Genset SEQ ID NO 776775

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	0	0	0	0	0	0	0	0	88600	89457.7165	na	PBS
B2	9	54	28	26	5	21600	20800	8000	17900				
B3	9	169	119	83	51	75600	80800	81600	76700				
B4	9	13	7	6	2	5200	5200	3200	4700				
B5	9	524	274	223	120	209600	168800	162000	166800				
B6	9	382	141	181	103	144800	129600	164800	141900				
B7	9	385	180	181	71	154000	139400	113600	135100				
B8	9	123	49	62	17	46200	44400	27200	41300				

exclude B1 from calculations

F1	9	52	17	22	9	20500	15500	14400	18500	11718.8857	13132.0748	0.01399	DNA pCAL 555a
F2	9	13	1	6	0	5200	2900	0	2700				
F3	9	3	0	2	0	1200	500	0	700				
F4	9	43	17	15	5	17200	12600	8000	12700				
F5	9	0	0	0	0	0	0	0	0				
F6	9	116	47	48	17	47200	36000	27200	37500				





E1	9	1577	785	811	418	630800	838400	865600	843300	349533.333	181088.377	0.8452	DNA pCAI 419
E2	9	387	143	187	80	154800	136000	141000	142700				
E3	9	1477	508	688	253	598800	481600	404800	485700				
E4	9	1005	484			428000	395200		419800				
E5	9	408	180	248	104	183200	171200	188400	188000				
E8	9	827	258	380	131	250800	255600	209800	242800				
F1	9	94	48	47	18	37800	38000	28800	35800	118488.867	88078.8448	0.004882	DNA pCAI 327
F2	9	575	288	284	130	230000	220000	208000	218500				
F3	9	181	74	82	37	72400	82400	59200	84100				
F4	9	158	85	83	38	63200	58200	62400	61000				
F5	9	458	127	224	107	182400	140400	171200	158800				
F8	9	418	144	285	121	187200	163800	183800	172000				
H1	9	1450	860	720	340	580800	552000	544000	557000	243500	144052.19	0.1375	DNA pCAI 632
H2	9	831	229	237	114	252400	188400	182400	201900				
H3	9	394	148	181	71	157800	132000	118800	133800				
H4	9	372	168	178	89	148800	137600	142800	141800				
H5	9	518	248	285	119	208400	205600	180400	202000				
H8	9	849	280	283	128	259800	217200	204800	224700				

Screen #	S54
Date	

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pCACPNM882 Genset SEQ ID NO 880  
pCA60KDa Genset SEQ ID NO 596

\* -no count-contaminated well  
\*\* -no count-well not stained

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	239	127	107	57	95900	93900	81200	220150	153871.24	na	PBS
B2	9	1560	730	681	378	824000	564000	601600				
B3	9	223	108	101	53	89200	83900	68300				
B4	9	391	194	238	97	156400	172800	155200				
B5	9	329	161	174	83	131800	134000	148800				
B6	9	529	258	281	135	211600	207600	218000				
B7	9	744	333	387	209	267900	292000	334000				
B8	9	469	217	221	108	187900	175200	172800				
J1	9	646	202	287	106	256400	198600	198600	184118.667	89755.846	0.862	DNA pCACPNM 882
J2	9	*	345	321	187	7rule	266400	282800				
J3	9	391	189	189	85	159400	143200	138000				
J4	9	459	182	227	88	183900	163600	166900				
J5	9	169	80	78	31	67800	55200	49800				
J6	9	396	138	165	87	159400	120400	107200				
J1	9	343	180	219	81	137200	163900	126600	159300	72712.8629	0.7546	DNA pCA CRMP 60 KD
J2	9	478	271	221	117	191200	188800	187200				
J3	9	605	333	308	190	242000	255900	304000				
J4	9	465	284	250	136	186000	205600	217600				
J5	9	269	**	207	75	107800	185600	120000				
J6	9	144	**	80	29	57900	64000	48400				

Screen	58
Date	

Notebook #	1941
Page #	184

pCAI640 Genset SEQ ID NO 468  
pCAI115 Genset SEQ ID NO 305

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs B group)	Immunized with
B1	9	207	124	101	56	82800	90000	88600	221050	151443.372	na	PBS
B2	9	717	414	286	139	288800	280000	222400				
B3	9	217	103	90	49	86800	77200	79900				
B4	9	1373	704	675	329	548200	551800	528400				
B5	9	864	308	371	186	285900	273800	265600				
B6	9	745	450	378	189	298000	331800	297600				
B7	9	260	165	118	56	104000	113200	89600				
B8	9	227	148	127	58	98800	109200	92800				



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 09/523,647

Applicant: MURDIN, Andrew D. et al.

Filed: March 10, 2000

TC/A.U.: 1645

Examiner: Mark Navarro

Docket No: 032931/0227

**DECLARATION PURSUANT TO 37 CFR 1.131**

I, Andrew Murdin, Director, External R&D Canada, Aventis Pasteur, hereby declare that:

1. I am an inventor in the above-identified application ('the application'), and am employed by the assignee, Aventis Pasteur.

2. Details of my employment history are as follows:

Since 2002 Director, External R&D Canada, Aventis Pasteur.

1999-2002 Principal Research Scientist, Aventis Pasteur.

1997-2002 Section Head, Aventis Pasteur.

1993-2003 Project Leader (Chlamydia), Aventis Pasteur.

1990-1993 Research Scientist, Connaught Laboratories Ltd. (subsequently Pasteur Merieux Connaught, subsequently Aventis Pasteur), Toronto, Canada.

1988-1990 Post-Doctoral Research Associate, Dept. of Microbiology, State University of New York, Stony Brook, NY, USA.

1985-1987 Post-Doctoral Research Fellow, Dept. of Microbiology, University of Surrey, Guildford, Surrey, England.

1981-1985 Scientific Officer, Vaccine Research Dept., Animal Virus Research Institute, Pirbright, Surrey, England.

Details of my education are as follows:

B.Sc., University of Bath, England, 1980

Ph.D., University of Surrey, England, 1986.

---

3. I obtained from Regis Sodoyer, an employee of the assignee Aventis Pasteur, at least 5 mg of the plasmid construct pCACRMP60 before November 4, 1998.

4. Attached are copies of e-mail correspondence between me and Regis Sodoyer. The dates deleted from the e-mail messages are before November 4, 1998. The product identified in the e-mails as CPCRMP60KD is the same as the plasmid construct pCACRMP60 shown in Figure 3 of the application.

5. The construct pCACRMP60 was used to immunize mice as described in Example 3 of the application. Injection of the mice with pCACRMP60 occurred before November 4, 1998.

6. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

20<sup>th</sup> Feb 2004

Date

A handwritten signature in black ink, appearing to read 'A. Murdin', written over a horizontal line.

Andrew Murdin

Director, External R&D Canada, Aventis Pasteur

Subject:

Date

**Murdin, Andrew - PMC-CA**

From: Murdin, Andrew - PMC-CA  
To: Sodoyer, Regis - PMC-FR  
Cc: Dunn, Pamela - PMC-CA; Switzer, Iain - PMC-CA  
Subject: RE: Shipment  
Date:

Thankyou very much Regis, Your laboratory has been busy! Please send this material next week. If you have any more than 5mg please send that too, but we can work with 5mg if that is all you have. The person to contact about the shipments is Sharon James (fax + 1 416 667 2979). I would recommend that you do this personally rather than rely on your shipping department, since the last shipment was packaged with other material being sent to a different department here in Canada and all the documentation went to that department, not to me or Sharon.

Not all chlamydia proteins may express well in E.coli, and I have part of an FTE next year to look at alternative systems, so I will be interested to learn your results with 76kDa. We should discuss this when you return from vacation.

Just so that I am absolutely sure, could you confirm that the purified MOMP is the *C. pneumoniae* MOMP, not the *C. trachomatis* MOMP?

Thanks again and best wishes, Andrew.

-----  
From: Sodoyer, Regis - PMC-FR  
To: Murdin, Andrew - PMC-CA  
Cc: Aujaime, Luc - PMC-FR  
Subject: Shipment  
Date:

Andrew,

Some news from Marcy

If you agree, we have the following list of products ready for shipment.

- CP003 (CPCRMP 9KD)
- CP004 (CPCRMP 60KD)
- CP007 (Incyte 202)
- CP009 (Incyte 605)
- CP012 (Incyte 394)
- CP013 (Incyte 395)
- CP014 (Incyte 396)

5mg each

~~Purified MOMP protein (5 mg)~~

and probably the empty vector if we are on time with the purification.

7 additional ORFs are cloned and sequenced at both ends and will be purified soon.

The expression of 76K in E. coli (pET28) gives very low yields and a lot of degradation, we are currently trying another expression system (home made vector with Arabinose promoter).

Date

**Murdin, Andrew - PMC-CA**

From: Sodoyer, Regis - PMC-FR  
To: Murdin, Andrew - PMC-CA  
Subject: Shipment  
Date: 10:08AM  
Wednesday

Andrew,

We have arranged a shipment this morning, content is following :

- CP000 (empty vector) (about 13 mg in 2 separate tubes) (PCA/Myc-His)
- CP003 (CPCRMP 9KD)
- CP004 (CPCRMP 60KD)
- CP017 (Incye 397) (in replacement of CP007)
- CP009 (Incye 605)
- CP012 (Incye 394)
- CP013 (Incye 395)
- CP014 (Incye 396)
- 5mg each
- Purified MOMP protein (25mg) ~5.5mg

Recd.

*[Handwritten signature]*

This is C.P. MOMP  
See attached e-mails  
you will receive, as well as Sharon James, flight number and arrival time as soon as we know.

Regis

Witnessed \_\_\_\_\_  
Date \_\_\_\_\_

Signed \_\_\_\_\_  
Date \_\_\_\_\_